

Appl. No. 09/787,902  
Amendment dated: December 1, 2004  
Reply to OA of: April 1, 2004

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

Claims 1-4(canceled).

5(currently amended). A method of producing hydrogen and carbon in a recycling process by pyrolysis of an organic gas utilising carbon dust as a catalyst for precipitation of carbon characterised by stimulating carbon precipitation by guiding the gas through a heated reaction chamber where the carbon molecules from the gas can attach to the catalytic particles causing growth of these to a pre-set size that can be mechanically trapped; and recycling said organic gas back through said reaction chamber.

6(previously presented). A method as claimed in claim 5 characterised by crushing a controlled amount of precipitated carbon and returning the crushed carbon to the reaction chamber in a continuous process for maintenance of an optimum balance with regard to the amount and size distribution of carbon particles.

7(previously presented). A method as claimed in claim 5 comprising heating said reaction chamber using excess heat from another process.

8(previously presented). A method as claimed in claim 5 comprising heating said reaction chamber to a temperature of between 300 and 2000°C.

9(currently amended). A method of pyrolysis of an organic gas comprising passing said gas through a heated reaction chamber containing carbon dust such that carbon from said gas is caused to precipitate onto said carbon dust causing growth of

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the size of the carbon particles to a trappable size, trapping said particles removing said ~~trappable~~ trapped particles from the heated reaction chamber, and returning a portion of said trapped particles after ~~crushing~~ being crushed to a fine dust to the heated reaction chamber.

Claims 10-15(canceled).

16(previously presented ). A method as claimed in claim 6 comprising heating said reaction chamber using excess heat from another process.

Claim 17(canceled).

18(previously presented). A method as claimed in claim 5 wherein the pyrolysis process operates at temperatures down to 400°C.